

This PDF is a selection from an out-of-print volume from the National Bureau of Economic Research

Volume Title: The National Income and Its Purchasing Power

Volume Author/Editor: Willford Isbell King, assisted by Lillian Epstein

Volume Publisher: NBER

Volume ISBN: 0-87014-014-0

Volume URL: <http://www.nber.org/books/king30-1>

Publication Date: 1930

Chapter Title: II. The Industrial Classification of the Population

Chapter Author: Willford Isbell King

Chapter URL: <http://www.nber.org/chapters/c6380>

Chapter pages in book: (p. 44 - 64)

CHAPTER II

THE INDUSTRIAL CLASSIFICATION OF THE POPULATION

Method of Estimating Population of United States.

Estimates of national income cannot be made without knowing the total and the working population of the country. Since the census of population is taken only once in a decade, it is necessary to estimate the population for each inter-censal year.

The method employed in interpolating population estimates has been to build up from the last census by calculating for each year the number of births and deaths and the net immigration. Evidently, if births and net immigration are added together and the number of deaths subtracted, the remainder represents the population increase during the given period. None of these three quantities can, however, be calculated with precision.

Reliability of Information Underlying Population Estimates.

During recent years, the Census registration area for deaths has come to cover the major portion of the population of the United States. The probabilities are that the great majority of deaths actually occurring within that area are reported to the proper registration official, and that, therefore, the statistics for the registration area are reasonably accurate. Since the registration area covers the majority of the inhabitants, it constitutes a sample which can now be safely used to represent the population as a whole.

One cannot feel a like degree of confidence in the estimates of the number of births. The Census birth registration has, until recently, included a much smaller proportion of the total population of the United States than has the death registration area, hence the birth-rates computed for the birth registration area are likely to be less representative of the country as a whole than are the death rates computed for the death registration area. There seems also, even within the registration area, to be a persistent tendency to neglect the registration of births. Studies which have been made both by the National Bureau of Economic Research and by other students in this field indicate that the actual birth rate is somewhat higher than the birth rate indicated by the registration figures. In the figures presented in Table I, an effort has been made to allow

INDUSTRIAL CLASSIFICATION OF POPULATION 45

for this error, but there is no way of knowing whether the allowance made for years since 1920 has been too great or too small.¹

Our estimates of net immigration are probably even less trustworthy. True, the records made by the Federal Government of the number of persons entering the United States through customary channels are probably accurate in most cases, but, during the period of immigration restriction, many persons (sometimes asserted to run into the hundreds of thousands annually) have illegally entered the country.

Reliability of Population Estimate.

For the reasons just explained, the population estimates appearing in Table I presumably deviate from the truth to a greater or lesser extent. Since population counts are available for 1910 and 1920, the probabilities are that the interpolated estimates for dates preceding 1920 are but slightly in error. Since 1920, however, it has been necessary to extrapolate figures and, when extrapolation is resorted to, there is always a danger that the error grows greater with the passage of time. It will be observed that the figures for later years are marked with asterisks and that notes are appended explaining that these estimates are preliminary. This annotation signifies that the Bureau of the Census has not as yet published its complete reports on births and deaths in the registration area, and that it has been necessary in the present investigation to make estimates on the basis of such preliminary reports as are published. In the case of deaths, early information is available in sufficient quantity to make possible reasonably accurate estimates. Preliminary data on births are, however, scanty. Only because the number of births is fairly stable from year to year, is it possible to make population estimates for recent dates which have any claim to consideration. As it is, the tentative figures presented for the year 1928 may be as much as a million in error, though it is hoped that they are not this far from the truth. While a 1% error in the population count would not introduce a 1% error into the income estimate, it would, however, vitiate the income estimate by perhaps half a per cent.

¹The correction necessary to cover the error of the original estimate built up to 1920 from 1910 was 1,064,000 for the decade. Since it is believed that the quality of available vital statistics is improving, the correction allowed since 1920 has been somewhat less, proportionally, than that required for the decade 1910-1920.

Estimation of the Gainfully Occupied Population.

As previously stated, the income of the country is dependent upon the volume of production, and production is dependent upon population. Not all of the inhabitants participate materially in the production of income. Children under 15 years of age are, for the most part, consumers and not producers. A considerable proportion of persons over 15 do not work directly for a money return, and hence do not fall within the category of the "gainfully occupied". To compute the income of the people of the United States, it is necessary to estimate the number of gainfully occupied persons in the country. We know, for each census date, what proportion of the entire population was composed of persons under 15 years of age. The reports of the Census Bureau also enable us to estimate for each year the number of persons born and the number of persons under 15 growing out of this age class or dying. It is possible also to estimate roughly the net number of immigrants under 15 years of age entering the United States. By combining these estimates, the population under 15 years of age can be calculated, and, the total population having been previously estimated, the population 15 years of age or over can evidently be obtained by subtraction.

We also know, for each Census date, what proportion of the population 15 years of age or over was represented by persons classed as gainfully occupied—that is, by those who were working for a money return. The fractions indicated for the census years have been plotted, and smooth curves have been drawn through the plotted points and extended to cover the other years.¹ Readings from these smooth curves have been taken and have been assumed to indicate the fractions for the years not covered by the Census. In this way, estimates of the number of persons gainfully occupied have been made for the beginning and middle of each year. These estimates appear in Table I.

Population Growth, 1909-1928.

This table indicates that the population has risen from 89 millions at the beginning of 1909 to 119 millions at the middle of 1928. In general, the growth of population has followed a straight line, but the annual increase was somewhat retarded during the period of the Great War, mainly because immigration to this coun-

¹Our estimates all exclude workers on home farms other than farmers. On this basis, the percentage gainfully occupied has shown practically no tendency to fluctuate from decade to decade.

INDUSTRIAL CLASSIFICATION OF POPULATION 47

TABLE I

ESTIMATES OF THE POPULATION OF THE CONTINENTAL UNITED STATES (THOUSANDS OF PERSONS)

Date	Total ^a	15 Years of Age and Over ^a	Gain- fully Oc- cupied ^b	Date	Total ^a	15 Years of Age and Over ^a	Gain- fully Oc- cupied ^b
1909 Jan. 1	89,357	60,546	33,700	1919 Jan. 1	104,524	71,178	40,816
July 1	90,508	61,439	34,255	July 1	105,007	71,558	40,282
1910 Jan. 1	91,530	62,127	34,660	1920 Jan. 1	105,711	72,098	39,764
July 1	92,422	62,869	35,100	July 1	106,422	72,589	40,008
1911 Jan. 1	93,165	63,463	35,433	1921 Jan. 1	107,412	73,356	40,444
July 1	93,837	63,968	35,700	July 1	108,370	74,037	40,819
1912 Jan. 1	94,458	64,404	35,914	1922 Jan. 1	109,135	74,593	41,108
July 1	95,249	64,997	36,237	July 1	109,742	75,055	41,330
1913 Jan. 1	96,144	65,649	36,600	1923 Jan. 1	110,688	75,856	41,790
July 1	97,111	66,392	37,028	July 1	111,478	76,523	42,156
1914 Jan. 1	98,213	67,241	37,527	1924 Jan. 1	112,666	77,531	42,760
July 1	98,974	67,738	37,782	July 1	113,466	78,193	43,123
1915 Jan. 1	99,710	68,213	38,017	1925 Jan. 1	114,293	78,896	43,514
July 1	100,390	68,264	37,956	July 1	115,004	79,511	43,844
1916 Jan. 1	101,055	69,035	38,401	1926 Jan. 1	115,780 ^c	80,219 ^c	44,239 ^c
July 1	101,787	69,515	38,638	July 1	116,380 ^c	80,804 ^c	44,912 ^c
1917 Jan. 1	102,590	70,060	38,925	1927 Jan. 1	117,160 ^c	81,546 ^c	45,359 ^c
July 1	103,234	70,484	39,373	July 1	117,843 ^{c*}	82,204 ^{c*}	45,747 ^{c*}
1918 Jan. 1	103,852	70,859	39,916	1928 Jan. 1	118,673 ^{c*}	82,976 ^{c*}	46,215 ^{c*}
July 1	104,377	71,132	40,383	July 1	119,306 ^{c*}	83,600 ^{c*}	46,580 ^{c*}

^a Figures for intercensal years estimated on basis of figures for births, deaths, and migration.

^b Estimated on the basis of the *Census of Occupations*, the *Censuses* for various industries, and the various statistical reports of the *Interstate Commerce Commission*.

^c This is a revised estimate made after the other tables in this volume had been completed, hence the figures therein differ very slightly from what they would be if they were based upon these figures.

* Preliminary estimate—basic data incomplete.

try was prevented by war conditions and by the interference of European Governments. Since 1919, however, the absolute rate of growth has been approximately as large as it was during the period preceding the Great War, even though the proportional rate of increase has somewhat declined. In the five years between January 1, 1909 and January 1, 1914, the growth in total population

was approximately 8,856,000. In the five years ending January 1, 1928, the increase is estimated at 7,985,000.

Growth in Population 15 Years of Age and Over.

While inhabitants of all ages have increased in number during the past two decades, the total number of persons 15 years of age and over has grown somewhat more rapidly than has the total population; in other words, the percentage which those above the age of 15 years constitute of the total population appears to have increased. This increase is apparently accounted for by the fact that a reduced death rate among children has resulted in a larger proportion of the population surviving to the age of 15 years.

Growth in Gainfully Occupied Population.

The figures in Table I also indicate that there has recently been an increase in the proportion of the total population classed as gainfully occupied, the reason doubtless being the same as that causing the rise in the percentage of the population who are adults. However, the proportion of the adult population gainfully occupied is at present slightly smaller than was the case a score of years ago. This fall is probably due to the fact that, of persons over 15 years of age, a larger percentage attend school at the present time than was formerly the case. To some extent the diminution due to this source has, however, been offset by the tendency of women to cease work in the home in order to enter gainful occupations. The facts just discussed are illustrated in Chart 1.

Entrepreneurs, Salaried Employees, and Wage Workers.

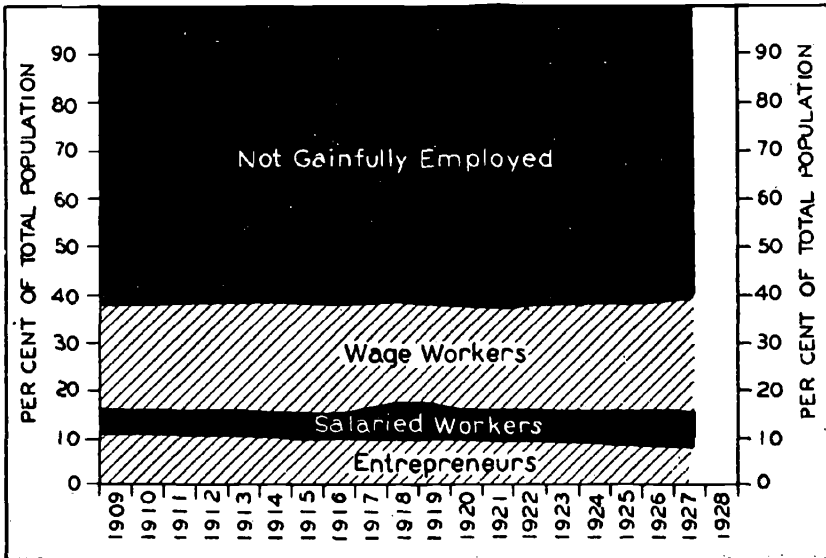
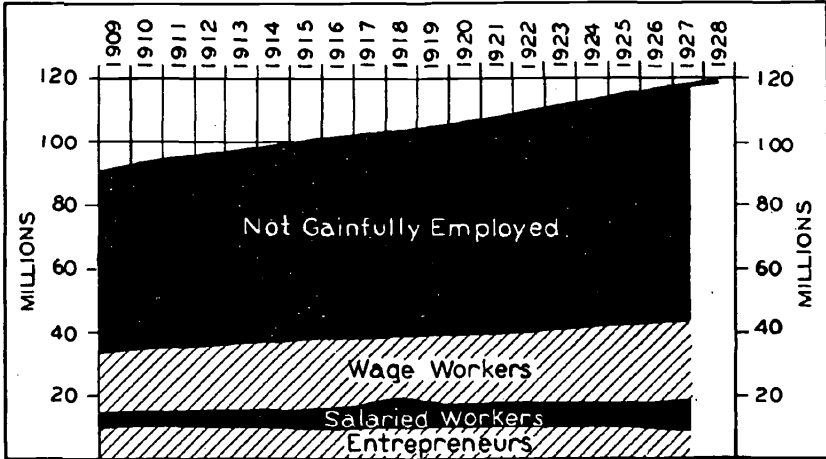
This same chart also shows the apportionment of the "gainfully occupied" among the three classes of:

1. Entrepreneurs
2. Salaried workers
3. Wage workers.

The term entrepreneur is here applied to every person whose principal occupation is the conduct of an enterprise which he controls. Some entrepreneurs have other persons working for them. Others are merely independent workers, like many farmers, small merchants, physicians, lawyers, and real estate agents. The essential fact which distinguishes the entrepreneur from the employee is

CHART 1

ESTIMATES OF THE POPULATION
OF THE CONTINENTAL UNITED STATES*



* For data, see Tables I, IV, V, and VI.

TABLE II

**ESTIMATED APPORTIONMENT AMONG
DIFFERENT INDUSTRIES OF THE TOTAL
POPULATION NORMALLY ENGAGED IN
GAINFUL OCCUPATIONS^a**

(AVERAGE NUMBER FOR YEAR EXPRESSED IN THOUSANDS)

Year	All Industries	Agriculture ^b	Manufacturing ^c	Mines, Quarries and Oil Wells ^d	Construction ^e	Banking ^f	Mercantile ^g	Government ^h	Unclassified ⁱ
1909	34,255	8,733	7,930	1,077	1,674	154	3,654	1,643	6,974
1910	35,100	8,814	8,176	1,099	1,650	158	3,783	1,709	7,115
1911	35,700	8,844	8,341	1,167	1,650	167	3,877	1,765	7,233
1912	36,237	8,800	8,604	1,173	1,676	172	3,970	1,821	7,308
1913	37,028	8,810	8,790	1,226	1,795	177	4,073	1,879	7,414
1914	37,782	8,792	8,943	1,204	1,795	183	4,176	1,947	7,858
1915	37,956	8,831	9,016	1,211	1,584	185	4,262	2,013	7,972
1916	38,638	8,801	10,009	1,180	1,375	188	4,345	2,085	7,780
1917	39,373	8,836	10,830	1,208	1,302	190	4,394	2,744	6,937
1918	40,383	8,862	11,276	1,191	1,037	197	4,278	5,210	5,256
1919	40,282	8,947	11,492	1,208	1,343	213	4,476	4,042	5,285
1920	40,008	8,871	11,389	1,239	1,092	232	4,618	2,719	6,355
1921	40,819	8,860	10,953	1,254	1,092	246	4,705	2,689	7,564
1922	41,330	8,643	10,928	1,269	1,363	252	5,126	2,618	7,693
1923	42,156	8,626	10,891	1,273	1,453	265	5,694	2,633	7,845
1924	43,123	8,672	10,654	1,214	1,532	271	5,485	2,674	9,176
1925	43,844	8,646	10,647	1,199	1,799	277	5,781	2,736	9,444
1926	44,560*	8,529*	10,829*	1,294	1,787*	288	5,906*	2,785*	9,794*
1927	45,373*	8,432*	10,746*	1,300*	1,753*	291*	6,122*	2,819*	10,599*
1928	47,100*								

^a The figures here given include those temporarily idle as well as those actually at work.

^b Based upon *Censuses of Occupations and Agriculture* and upon reports of the *Bureau of Agricultural Economics*.

^c Based upon *Census of Manufactures* and State reports on manufactures. Includes only factories having total products valued at \$5,000 and over.

^d Based upon the *Census of Mines and Quarries* and reports of the *U. S. Bureau of Mines* and the *Dept. of Internal Affairs*.

^e Estimated upon the basis of the volume of construction as reported by the F. W. Dodge Co. and upon the ratios of workers to construction volume shown by the Pennsylvania and Ohio State reports.

^f Based upon the annual reports of the *Comptroller of the Currency*.

^g Based upon the *Census of Occupations* and an original investigation of the volume of sales.

^h Based upon reports of the *War Dept.*, *Navy Dept.*, and *Civil Service Commission* and upon *Financial Statistics of Cities and States*.

ⁱ These figures are the difference between the total gainfully occupied and the summation for the separate industries.

that he takes the risk of the enterprise and does not receive for his services a fixed rate of compensation from an employer.

The distinction between salaried employees and wage workers

INDUSTRIAL CLASSIFICATION OF POPULATION 51

TABLE II—Continued

ESTIMATED APPORTIONMENT AMONG
DIFFERENT INDUSTRIES OF THE TOTAL
POPULATION NORMALLY ENGAGED IN
GAINFUL OCCUPATIONS^a

(AVERAGE NUMBER FOR YEAR EXPRESSED IN THOUSANDS)

Year	All Following Fields of Transportation	Railroads ¹	Pull-man ²	Ex-press ³	Trans- portation by Water ^m	Street Rail- ways ⁿ	Private Electric Light and Power ^o	Tele- phones ^p	Tele- graphs ^q
1909	2,417	1,620	18	59	226	250	55	150	39
1910	2,597	1,758	18	61	228	265	61	165	41
1911	2,657	1,763	18	61	235	279	67	185	49
1912	2,714	1,774	18	65	243	288	72	204	49
1913	2,865	1,895	21	64	249	293	77	218	48
1914	2,883	1,899	21	63	249	296	82	226	48
1915	2,882	1,883	20	64	250	298	87	230	50
1916	2,874	1,844	20	64	253	300	92	244	58
1917	2,929	1,852	20	74	250	301	96	268	67
1918	3,077	1,969	19	70	261	303	102	282	71
1919	3,275	2,075	20	77	322	306	108	297	71
1920	3,494	2,163	23	91	408	307	116	311	75
1921	3,456	2,122	23	82	403	308	126	318	75
1922	3,438	2,097	21	77	400	308	139	322	75
1923	3,476	2,080	22	74	395	319	161	350	76
1924	3,445	2,040	25	71	376	318	168	370	77
1925	3,314	1,891	26	68	362	318	187	377	86
1926	3,350	1,902	27	68	361	319	206	381	86
1927	3,311*	1,856*	27	66	349	322	221	385	86

¹ Includes switching and terminal companies. Based upon *Statistics of Railways*.

² Based upon *Preliminary Abstracts of Statistics of Common Carriers*.

³ Based upon *Statistics of Express Companies* and other data from *Interstate Commerce Commission*.

^m Based upon the *Census of Transportation by Water* and upon the reports of the *U. S. Commissioner of Navigation and Merchant Marine Statistics*.

ⁿ Based upon *Census of Electric Railways*.

^o Based upon *Census of Electric Light and Power* and upon reports of the *Geological Survey*.

^p Based upon *Census of Telephones* and reports of the *Bell Telephone Companies*.

^q Based upon *Census of Telegraphs* and reports of the *Western Union Telegraph Co.*

* Preliminary estimate.

is often difficult to draw. In this, as in previous studies by the present author, the definition laid down by the Bureau of the Census has been followed, and the managerial staff, the office workers, and those having relatively high security of tenure have been counted as salaried employees, while all others have been

classed as wage workers. All employees of Government and all employees of banks have been put in the salaried group because of lack of the data necessary for the segregation of the two classes. Chart 1 indicates that the salaried class was abnormally large during the years 1917 to 1919, an expansion accounted for almost entirely by the fact that a great number of men were serving in the Army, and hence are arbitrarily classified in this volume as salaried employees.

Chart 1 indicates that, while the absolute numbers of gainfully occupied, and also the absolute numbers working as employees, have grown steadily larger, the number of entrepreneurs has remained practically constant throughout the two decades. The comparison by percentages given in the lower part of the chart is perhaps more significant than are the absolute figures illustrated above. From it we see that the wage workers today include a slightly larger proportion of the total number of inhabitants than they did in 1909, their numbers having increased at the expense of those not gainfully occupied. Since the absolute number of entrepreneurs has remained approximately unchanged, while the population has grown, it obviously follows that the percentage of the population classed as entrepreneurs has diminished. The shrinkage in the entrepreneurial class is almost exactly balanced by an increase in the salaried class, the result being that the entrepreneurs and salaried employees, combined, form practically the same per cent of the population in 1927 as in 1909.

Changes in Industrial Connections of Gainfully Occupied.

Tables II and III record the estimated changes in the numbers of persons making their living in the various industries of the country. Chart 2 illustrates these tables both in absolute and in percentage form. A study of these tables and this chart indicates that agriculture is the only industry in which fewer people were engaged in 1927 than in 1909. The number of persons attached to this field showed little change until 1921, but a marked decline has since occurred. Manufacturing grew steadily until 1919, but, from that date on, a slow shrinkage is apparent. The construction industry, on the other hand, underwent a great depression between 1916 and 1922, but has recovered markedly in recent years. The railroad industry attained a high point in 1920 and has since tended to require a smaller proportion of the nation's working force than was formerly true. The express business has shown a similar ten-

INDUSTRIAL CLASSIFICATION OF POPULATION 53

TABLE III

ESTIMATED PERCENTAGE OF THE GAINFULLY OCCUPIED POPULATION ENGAGED IN EACH OF THE LEADING INDUSTRIES^a

(AVERAGE FOR YEAR)

Year	All Industries	Agriculture	Manufacturing	Mines, Quarries and Oil Wells	Construction	Banking	Mercantile	Government	Specified Phases of Transportation	Unclassified
1909	100.00	25.49	23.15	3.14	4.89	0.45	10.67	4.80	7.05	20.36
1910	100.00	25.11	23.29	3.13	4.70	0.45	10.78	4.87	7.40	20.27
1911	100.00	24.77	23.36	3.27	4.62	0.47	10.86	4.94	7.44	20.26
1912	100.00	24.28	23.74	3.24	4.63	0.48	10.95	5.02	7.49	20.17
1913	100.00	23.79	23.74	3.31	4.85	0.48	11.00	5.08	7.74	20.02
1914	100.00	23.27	23.67	3.19	4.75	0.48	11.05	5.15	7.63	20.80
1915	100.00	23.27	23.75	3.19	4.17	0.49	11.23	5.30	7.59	21.00
1916	100.00	22.78	25.91	3.05	3.56	0.49	11.25	5.40	7.44	20.14
1917	100.00	22.44	27.51	3.07	3.31	0.48	11.16	6.97	7.44	17.62
1918	100.00	21.95	27.92	2.95	2.57	0.49	10.59	12.90	7.62	13.01
1919	100.00	22.21	28.53	3.00	3.33	0.53	11.11	10.03	8.13	13.12
1920	100.00	22.17	28.47	3.10	2.73	0.58	11.54	6.80	8.73	15.88
1921	100.00	21.71	26.83	3.07	2.67	0.60	11.53	6.59	8.47	18.53
1922	100.00	20.91	26.44	3.07	3.30	0.61	12.40	6.34	8.32	18.61
1923	100.00	20.46	25.84	3.02	3.45	0.63	13.51	6.25	8.25	18.61
1924	100.00	20.11	24.71	2.81	3.55	0.63	12.72	6.20	7.99	21.28
1925	100.00	19.72	24.28	2.73	4.10	0.63	13.19	6.24	7.56	21.54
1926	100.00	19.14	24.30	2.90	4.01	0.65	13.25	6.25	7.52	21.98
1927	100.00	18.58	23.68	2.86	3.86	0.64	13.49	6.21	7.30	23.36
1928	100.00									

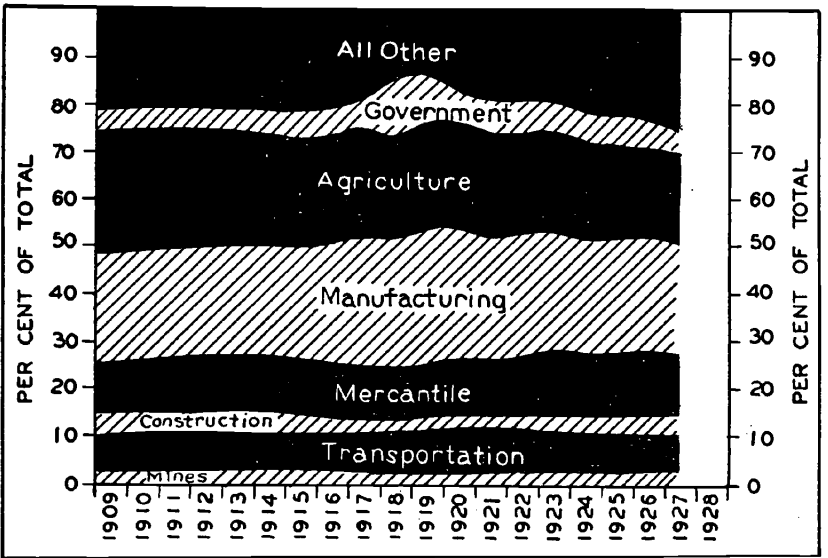
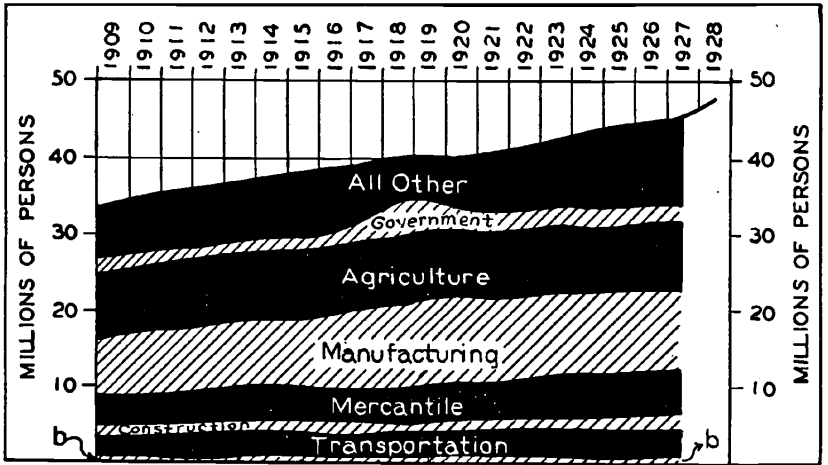
^a Calculated from the figures presented in Table II.

dustry. Industries showing notable gains for the period 1909 to 1927, inclusive; are the following: banking, mercantile, government, Pullman, transportation by water, telephone, telegraph, private electric light and power, and unclassified industries. The increases between the years mentioned, expressed in percentages, are as follows:

Pullman	50%	Mercantile	67%	Telegraph	120%
Unclassified	52%	Government	71%	Telephone	156%
Transportation by water	54%	Banking	89%	Private electric light and power	300%

CHART 2

ESTIMATED APPORTIONMENT AMONG DIFFERENT INDUSTRIES OF THE TOTAL POPULATION NORMALLY ENGAGED IN GAINFUL OCCUPATIONS^a



^a For data, see Tables II and III.

^b Mines.

Since, during this eighteen year period, the total number of persons gainfully occupied expanded by less than 38%, it is evident that the industries just listed have been gaining at the expense of the other fields. It will be observed that the branches of industry which have been stationary or slow in growth are, in general, those commonly considered the more basic in their nature, such as agriculture, manufacturing, mining, construction, and railroad transportation. It appears, then, that, with increasing prosperity, the people of the country have demanded less of these old-fashioned products and more of the newer types of goods and services.

Rank of Industries in Man-Power.

Chart 2 shows that the man-power necessary to carry on our share in the World War was principally obtained by reducing the numbers engaged in construction, merchandising, and unclassified industries, agriculture showing practically no reduction on account of Government demands for men¹ and manufacturing showing an expansion during that period. Even though manufacturing has grown slowly as compared with some of the other fields of activity, it still includes a larger proportion of the gainfully occupied population than any other industry. If we except the heterogeneous group of the "unclassified," agriculture occupies the second place in the industrial field, and the mercantile industry the third. These three industries combined still employ considerably more than half of the total gainfully occupied population in the United States.

Industrial Attachments of Wage Workers.

Table IV shows the number of wage workers attached to each of the leading industrial fields. The fact should be noted at this point that the number of persons "attached" to a given industry is by no means the same thing as the number of persons actually at work in the industry. The phrase "attached to the industry" is here used to indicate the condition of all persons who normally obtain their living by working in the given industry, whether or not they were actually at work on the date specified. In a period of depression, such as 1921, there was of course a great shrinkage in the numbers of employees actually working in the factories of the United States. An investigation² made by the National Bureau of

¹It is possible that our estimates for 1918 are too high for merchandising and agriculture and too low for unclassified industries. They are, however, based upon the best evidence available.

²See the publication of the National Bureau of Economic Research entitled, *Employment, Hours, and Earnings in Prosperity and Depression*.

TABLE IV

**ESTIMATED NUMBERS OF WAGE WORKERS^a
ATTACHED TO THE VARIOUS INDUSTRIES^b**

(AVERAGE NUMBER FOR YEAR EXPRESSED IN THOUSANDS)

Year	All Industries	Agriculture ^c	Manufacturing ^c	Mines, Quarries and Oil Wells ^c	Construction ^c	Mercantile ^d	Unclassified ^e
1909	19,986	2,384	6,875	999	1,410	2,033	4,333
1910	20,543	2,447	7,012	1,023	1,379	2,120	4,454
1911	20,983	2,461	7,157	1,090	1,373	2,185	4,568
1912	21,330	2,403	7,379	1,096	1,392	2,252	4,625
1913	21,916	2,402	7,539	1,147	1,496	2,311	4,706
1914	22,466	2,376	7,698	1,124	1,492	2,375	5,074
1915	22,555	2,407	7,800	1,130	1,296	2,432	5,169
1916	23,074	2,370	8,735	1,098	1,101	2,477	4,988
1917	23,012	2,399	9,394	1,123	1,033	2,505	4,231
1918	21,707	2,419	9,696	1,099	793	2,516	2,745
1919	22,385	2,499	9,813	1,109	1,078	2,593	2,696
1920	23,208	2,419	9,735	1,142	850	2,693	3,626
1921	23,759	2,404	9,330	1,160	849	2,733	4,579
1922	24,256	2,309	9,334	1,175	1,091	3,065	4,601
1923	24,943	2,273	9,328	1,189	1,162	3,525	4,757
1924	25,616	2,282	9,112	1,128	1,230	3,338	5,844
1925	26,150	2,290	9,118	1,112	1,467	3,574	6,033
1926	26,781*	2,294	9,290*	1,208	1,449*	3,677*	6,286*
1927	27,298*	2,276	9,100*	1,215*	1,421*	3,852*	6,893*

^a The term "wage workers" as here used excludes clerical workers and other salaried employees, all employees in banking, and all public employees.

^b Workers are considered attached to an industry if they depend upon it for a living even though they are temporarily unemployed.

^c Sources of information are same as those referred to in Table II.

^d Based upon reports of *Michigan Dept. of Labor* and upon the *Census of Occupations*.

^e Based upon *Census of Occupations*.

* Preliminary estimate.

Economic Research showed, however, that there was at that time little tendency on the part of employees to shift their industrial allegiance, mainly because, when employees were being laid off by millions in such fields as manufacturing and mining, no other industries were taking on workers, and hence there was no opportunity for the idle to obtain regular employment elsewhere.

In estimating the number of employees attached to a given industry, it has been assumed that every person continues to be attached to the last industry in which he has been employed until some other suitable industry, by adding to its working force, makes

INDUSTRIAL CLASSIFICATION OF POPULATION 57

TABLE IV—Continued

ESTIMATED NUMBERS OF WAGE WORKERS^a ATTACHED TO THE VARIOUS INDUSTRIES^b (AVERAGE NUMBER FOR YEAR EXPRESSED IN THOUSANDS)

Year	All Following Fields of Trans- por- tation	Rail- roads ^c	Pull- man ^c	Ex- press ^c	Trans- por- tation by Water ^c	Street Rail- ways ^c	Private Electric Light and Power ^c	Tele- phones ^c	Tele- graphs ^c
1909	1,952	1,331	14	31	153	232	38	125	28
1910	2,109	1,453	14	32	154	245	42	140	29
1911	2,149	1,453	14	32	160	257	45	154	35
1912	2,183	1,455	14	34	167	264	48	166	35
1913	2,314	1,564	17	32	172	268	51	176	34
1914	2,327	1,564	17	32	172	270	54	183	34
1915	2,320	1,546	16	32	174	272	57	188	35
1916	2,305	1,506	16	31	177	273	60	202	40
1917	2,327	1,500	15	30	175	274	63	223	46
1918	2,439	1,591	15	25	182	275	67	235	49
1919	2,598	1,686	16	28	225	278	70	248	49
1920	2,743	1,746	18	33	285	278	75	258	51
1921	2,704	1,704	18	31	280	278	81	262	51
1922	2,681	1,679	16	29	278	277	88	264	51
1923	2,708	1,660	17	28	274	288	101	290	51
1924	2,682	1,625	20	26	260	286	105	308	52
1925	2,555	1,486	21	26	250	285	117	313	58
1926	2,577	1,495	21	25	249	286	128	315	58
1927	2,540*	1,455*	22	24	240	288	137	317	58

it possible for him to shift to a new industry. This assumption avoids abrupt fluctuations in the number of persons attached to industry, and the changes recorded are, as a rule, gradual.

During the last 20 years, marked drifts have occurred in certain industries. The changes in agriculture and manufacturing have already been noted. Employment in mines and quarries rose from 1909 to 1913, showed little change between 1913 and 1925, but began to take on more wage workers since the last mentioned date. The construction industry was on a relatively high level between 1909 and 1914; dropped into a trough during the war period largely because of restrictions on private building, but emerged therefrom during the years 1922 to 1925. Since that date, the number of wage workers employed in this field has been much the same as in

the period 1909 to 1914. The mercantile industry has, throughout the period, been absorbing a constantly larger proportion of all wage earners. The same may be said of the unclassified industries, except for a marked depression during the years 1918 to 1920. Railroad wage workers grew in numbers from 1909 to 1920, but, since the last mentioned date, the railroads have operated with fewer employees of this class. The express and transportation by water industries have shown a trend similar to that for railways. The Pullman industry has, during the last twenty years, shown steady growth in the number of wage workers employed. Street railways took on more wage workers from 1909 to 1919, remained approximately on the same level for 4 years, but, since 1923, have again advanced to a higher level. In the telephone and telegraph, and especially in the private electric light and power industries, the number of wage workers has been increasing at a rapid rate.

Salaried Employees and Entrepreneurs.

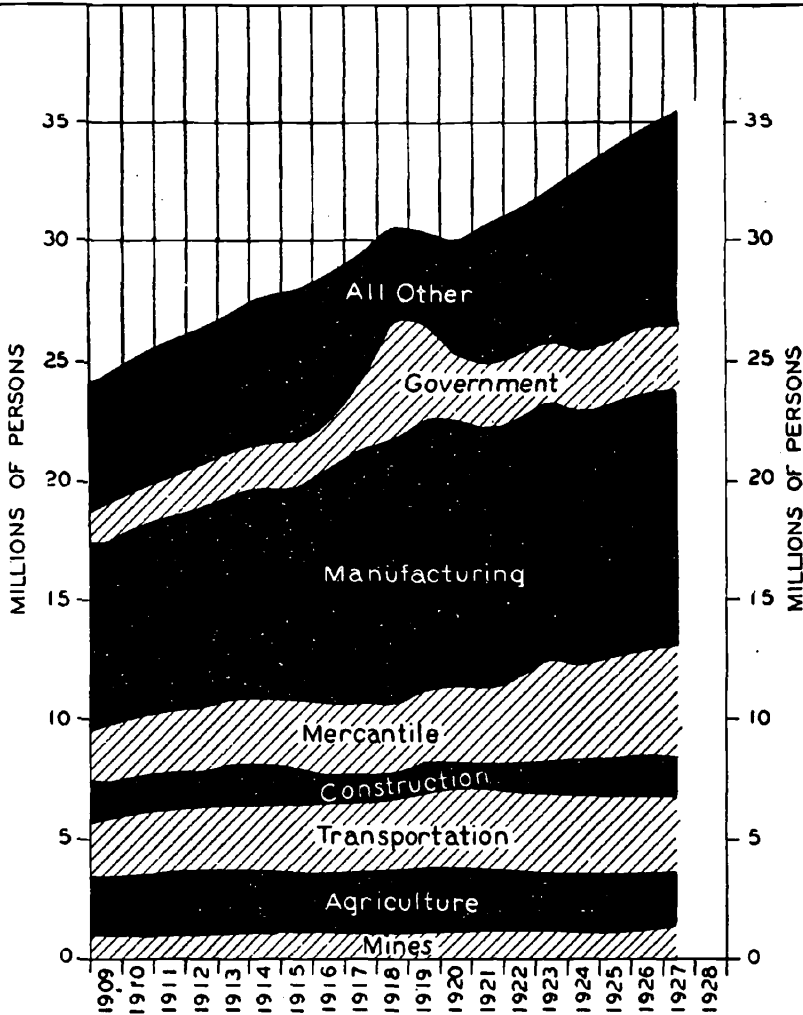
Between 1909 and 1927 the number of wage workers attached to all industries gained 36%, while, during the same interval, the number of salaried employees was increased by 87%. At first thought, one would probably conclude from these figures that, as industry becomes more highly organized, a larger and larger proportion of the working force is required for managerial purposes. We have seen, however, that the percentage of the total population obtained by adding salaried employees and entrepreneurs has remained approximately constant for the last score of years. The true explanation of the relatively rapid increase in the number of salaried employees appears, then, to be that, as industry has been organized into larger and larger entrepreneurial units, those who formerly were independent entrepreneurs have accepted salaried positions, the total office and managerial force of the nation constituting a practically unchanging proportion of the gainfully occupied population.

Industrial Attachments of Salaried Employees.

Data concerning the number of employees working for salaries are more scanty, in general, than are those relating to wage workers. The estimates for the agricultural field, for example, appearing in Table V, represent little more than rough guesses. The same may be said of the figures for the construction industry, the mercantile industry, transportation by water, banking, and unclassified in-

CHART 3

ESTIMATED NUMBERS OF EMPLOYEES
ATTACHED TO THE VARIOUS INDUSTRIES^a



^a For data, see Tables IV and V.

THE NATIONAL INCOME

TABLE V

ESTIMATED NUMBERS OF SALARIED EMPLOYEES^a
ATTACHED TO THE VARIOUS INDUSTRIES^b

(AVERAGE NUMBER FOR YEAR EXPRESSED IN THOUSANDS)

Year	All Industries	Agriculture ^c	Manufacturing ^c	Mines, Quarries and Oil Wells ^c	Construction ^c	Banking ^d	Mercantile ^c	Government ^d	Unclassified ^c
1909	4,424	60	790	43	90	151	398	1,643	794
1910	4,673	60	905	44	96	155	410	1,709	816
1911	4,811	60	930	45	102	163	421	1,765	826
1912	4,980	61	976	47	108	169	428	1,821	849
1913	5,162	62	1,007	50	121	174	452	1,879	875
1914	5,340	63	1,007	52	125	179	470	1,947	949
1915	5,407	65	983	54	112	181	481	2,013	965
1916	5,555	66	1,046	57	98	184	503	2,085	955
1917	6,367	68	1,214	61	95	187	526	2,744	878
1918	8,879	69	1,363	68	74	193	508	5,210	763
1919	7,968	70	1,468	77	103	209	509	4,042	820
1920	6,740	71	1,448	75	82	228	522	2,719	853
1921	6,991	69	1,424	74	83	243	565	2,689	1,102
1922	7,026	63	1,403	75	108	249	629	2,618	1,133
1923	7,185	55	1,385	65	115	262	712	2,633	1,197
1924	7,488	46	1,375	68	122	267	677	2,674	1,504
1925	7,697	39	1,370	70	146	274	723	2,736	1,587
1926	7,896*	35*	1,387*	70	145*	284	735*	2,785*	1,689*
1927	8,274*	32*	1,498*	70*	142*	288*	771*	2,819*	1,892*

^a Includes both managerial and clerical employees.^b Workers are considered attached to an industry if they depend upon it for a living, even though they are temporarily unemployed.^c Sources of information are same as those referred to in Table IV.^d Wage workers as well as salaried employees included here. For sources from which figures are derived, see notes to Table II.

* Preliminary estimate.

dustries. The last really dependable data for the whole group of electrical industries, with the exception of the telephone industry, are the Census figures for 1922, hence our estimates for more recent years may be considerably in error. For mines, quarries and oil-wells the only reliable figures available are those for 1909 and 1919. Fortunately, the estimates for manufacturing, government, and the railroad, Pullman, and express industries, rest on a firmer foundation.

We find that the number of salaried employees in manufacturing almost doubled between 1909 and 1919, but remained approximately

INDUSTRIAL CLASSIFICATION OF POPULATION 61

TABLE V—Continued

ESTIMATED NUMBERS OF SALARIED EMPLOYEES* ATTACHED TO THE VARIOUS INDUSTRIES^b

(AVERAGE NUMBER FOR YEAR EXPRESSED IN THOUSANDS)

Year	All Follow- ing Fields of Trans- por- tation	Rail- roads ^c	Pull- man ^c	Ex- press ^c	Trans- por- tation by Water ^c	Street Rail- ways ^c	Private Electric Light and Power ^c	Tele- phones ^c	Tele- graphs ^c
1909	455	289	4	28	64	17	17	24	12
1910	479	305	4	29	65	20	20	25	12
1911	499	310	4	29	66	22	22	32	14
1912	522	318	4	31	68	24	24	39	14
1913	541	331	4	31	68	25	26	42	14
1914	547	335	4	31	67	25	28	42	14
1915	553	337	4	33	67	26	30	42	15
1916	561	338	4	33	67	27	31	42	18
1917	594	352	4	44	67	27	33	45	21
1918	629	377	4	45	70	28	35	47	23
1919	669	389	4	49	88	29	38	49	23
1920	742	417	5	58	114	29	41	53	24
1921	743	418	5	51	114	30	46	56	24
1922	749	418	5	48	114	31	51	58	24
1923	761	420	5	47	114	31	60	60	25
1924	755	416	5	44	109	32	63	62	25
1925	751	405	5	42	105	32	70	64	28
1926	766	408	6	43	105	33	78	66	28
1927	763*	401*	6	41	101	34	84	68	28

stationary since the latter date. While the number of persons employed by the Federal Government can be estimated with a fair degree of accuracy, the number serving the State and Local governments can be calculated but roughly. It appears, however, that, aside from the great war-time increase in the military and naval establishments, the number of employees of the various governmental units in the United States grew consistently from 1909 to 1917, and, since the War, has remained on a level materially higher than existed before the War. The number of salaried employees working for the railroads increased steadily between 1909 and 1920, but, since the last mentioned date, has been fairly constant. Much the same tendency is apparent in the express industry, although there has been more of a decline in that field in recent years.

TABLE VI

ESTIMATED NUMBERS OF ENTREPRENEURS^a
ATTACHED TO THE VARIOUS INDUSTRIES^b

(AVERAGE NUMBER FOR YEAR EXPRESSED IN THOUSANDS)

Year	All Industries	Agriculture ^c	Manufacturing ^d	Mines, Quarries and Oil Wells ^e	Construction ^f	Banking ^g	Merchandise ^h	Transportation by Water ⁱ	Unclassified ^j
1909	9,845	6,289	264	35	174	4	1,223	9	1,847
1910	9,884	6,307	259	33	175	4	1,253	9	1,845
1911	9,906	6,322	254	31	176	4	1,271	9	1,839
1912	9,927	6,336	249	30	177	4	1,289	9	1,834
1913	9,950	6,346	244	29	178	4	1,309	9	1,832
1914	9,976	6,353	239	28	178	4	1,331	9	1,836
1915	9,994	6,359	233	27	176	4	1,348	9	1,838
1916	10,009	6,365	228	26	176	4	1,365	9	1,838
1917	9,994	6,369	222	25	174	4	1,364	8	1,828
1918	9,797	6,374	217	24	169	4	1,254	8	1,748
1919	9,929	6,378	211	23	162	4	1,374	8	1,769
1920	10,060	6,381	206	22	160	4	1,403	8	1,876
1921	10,069	6,387	200	21	160	4	1,408	8	1,882
1922	10,048	6,271	191	20	164	4	1,432	8	1,959
1923	10,028	6,297	178	19	176	4	1,456	8	1,890
1924	10,019	6,344	167	18	180	4	1,471	8	1,828
1925	9,997	6,317	159	17	185	4	1,484	8	1,824
1926	9,883*	6,200*	153*	16	192	4	1,493*	8	1,819
1927	9,801*	6,124*	148*	15	190	4	1,499*	7	1,814

^a The term "entrepreneur," as here used, includes not only employers, but also individuals working on their own account, as, for example, farmers, merchants, lawyers, physicians, etc.

^b Workers are considered attached to an industry if they depend upon it for a living, even though they are temporarily unemployed.

^c Based upon *Census of Agriculture* and reports of the *U. S. Dept. of Agriculture*.

^d Based upon *Censuses of Manufactures and of Occupations*.

^e Based upon *Censuses of Mines and Quarries and of Occupations*.

^f Based upon *Census of Occupations*.

^g Based upon estimate of volume of banking business as indicated by figures in reports of *Comptroller of Currency*.

^h Based upon *Census of Occupations* and original investigation of volume of sales.

ⁱ Based upon reports of the *Commissioner of Navigation* and upon *Merchant Marine Statistics*.

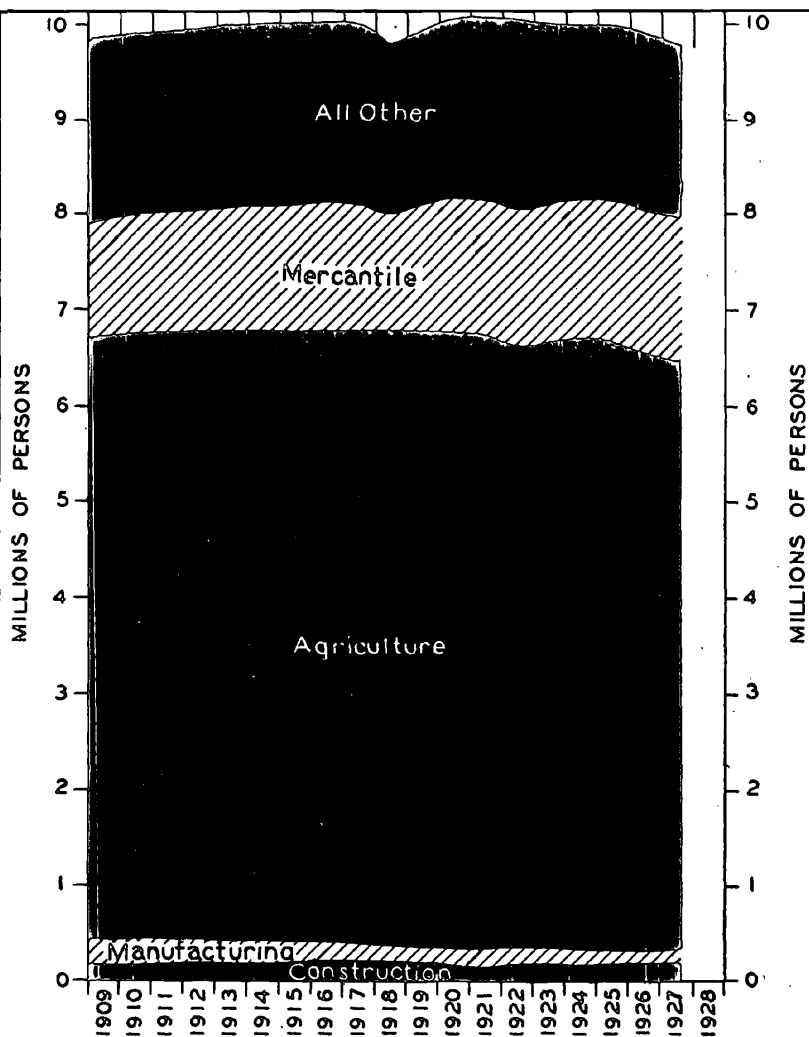
* Preliminary estimate.

Industrial Attachments of Entrepreneurs.

Table VI records the estimated numbers of entrepreneurs attached to the leading industries. These estimates are, however, subject to a large margin of error. The figures for banking are little more than guesses, while those for transportation by water are based upon data too fragmentary to command much respect. In

CHART 4

ESTIMATED NUMBERS OF ENTREPRENEURS ATTACHED TO THE VARIOUS INDUSTRIES^a



^a For data, see Table VI.

the construction industry and also in the unclassified field, information likewise is lamentably scanty. In general, the figures in Table VI represent estimates made upon the basis of the data contained in the *Census of Occupations* for 1910 and a similar census for 1920. Even for those two dates the totals are not entirely accurate, for the data for various occupations, as recorded in the reports of the Bureau of the Census, frequently fail to distinguish entrepreneurs from employees. Data compiled by the United States Bureau of Agricultural Economics enable us to calculate with some degree of confidence the number of entrepreneurs or farmers in agriculture for recent years. Furthermore, the *Census of Agriculture*, taken in 1925, gives us an additional basing point. Since farmers constitute approximately $3/5$ of all entrepreneurs, it is fortunate that the single field for which fairly reliable information is available is the largest of all entrepreneurial groups. The *Census of Manufactures* gives us fairly dependable information for the years 1909, 1914, and 1919. For the period since 1919, our estimates of the number of individual entrepreneurs engaged in manufacturing have little to commend them. For mines, quarries, and oil-wells, reliable data are available only for the years 1909 and 1919. Dependable information for the mercantile industry can be obtained only for 1910 and 1920. The same is true of the estimates for the unclassified field. Despite the shortcomings of the data, there can be little doubt about the outstanding facts portrayed in Chart 4.

The Decline of the Individual Entrepreneur.

The decline in the number of entrepreneurs caused by the enrollment of men in the army during the war is also clearly indicated, as is the fact that the total number of entrepreneurs has tended to remain approximately stationary during the period when the numbers of employees in the various industries have been moving steadily upward. The decline since 1924 in the number of entrepreneurs in each of the three leading fields is also clearly shown. This chart, then, when taken in combination with those preceding, makes it perfectly plain that the independent entrepreneur is playing a relatively much less important rôle in industry than was the case a score of years ago.